DOCUMENT RESUME

ED 246 343 CG 017 585

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TITLE A Trend Analysis of Change in Interpersonal Skill Training Using Laboratory Training Methodology.
PUB DATE Apr 84
NOTE 13p.; Paper presented at the Annual Meeting of the Eastern Psychological Association (Baltimore, MD, April 12-15, 1984).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Change; College Students; Higher Education; *Interpersonal Communication; *Laboratory Training; Research Design; Skill Development; Statistical Analysis; *Trend Analysis

ABSTRACT

Past research on the effectiveness of laboratory training (the use of small group methods of experienced-based learning to produce personal change in attitudes and behaviors) has been deficient both in experimental design and in the concept of change. College students (N=128) participated in a study which used a series of 11 measurements to assess the nature of change (alpha, linear or pre- post-change; and beta change, instrument reactivity or scale recalibration) during a 13-week laboratory training session in 15 interpersonal communication skills. Students completed weekly Likert scales on two dimensions of the 15 skills: how good are you at the skill?, and how much change do you desire? Forty-four comparison subjects who did not receive the training completed the same self-rating form during their first and eleventh class sessions. An analysis of the results showed significant linear trends for all 15 pairs of regression equations. A significant positive change occurred during the training period for 13 of the 15 skills on the how good dimension. On the desired change dimension a significant negative change occurred for each of the 15 skills. Subjects perceived that their ability to perform the skills increased with training. They also continued to value increasing their ability to perform the skills throughout the training program. (BL)

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A TREND ANALYSIS OF CHANGE IN INTERPERSONAL SKILL TRAINING USING LABORATORY TRAINING METHODOLOGY

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CG017585

Paper presented at the Annual Meeting of the Eastern Psychological Association, Baltimore, MD, April 12-15, 1984.

1. Title: A trend analysis of change in interpersonal skill training using laboratory training methodology

2. Topical Session: 1. Organizational-Industrial, 2. Social, 3. Educational

3. Problem

Laboratory training can be defined operationally as the use of small group methods of experience-based learning to produce personal change in the attitudes and in the behavior of participants. Past research in this area has been reported as deficient by various researchers (Campbell & Dunnette, 1968; Smith, 1975; Hartman, 1979). Two of the major areas of deficiency are: 1) experimental design, and 2) concept of change.

With regard to experimental design, much of the measurement of laboratory training uses pre- post- designs to assess training outcomes. Results have been inconclusive, yielding both positive and negative effects, depending on the type of instrument used. For example, within the same study, interviews of subjects may have suggested positive changes while subject pre- post- self-ratings showed no change. Additionally, pre- post- designs do not measure the changes that may occur during the training process. For example, in an outcome design, if a rating of "3" was reported on both pre- and post- measures, we could assume that no change had occurred. A process design would allow assessment of possible changes occurring during the pre- post- period. Thus, in addition to measuring outcome, reviewers of laboratory training, Smith (1975), and Hartman (1979), have advised a

process oriented series of measurements to detect changes that may occur during the training process.

A second problem in this area of reaserch is suggested by theories involving the concept or nature of change. Golembiewski, Billingsly, and Yeager (1976), have proposed three types of change: alpha, beta, and gamma. Briefly described, alpha change can be conceived as similar to a traditional concept or definition of pre- post- change occurring in psychological research in which self-report measures are employed. Beta change can be conceived as similar to what has been described in literature as instrument reactivity or more specifically, scale recalibration. The third type of change, gamma, was not investigated in the present study.

The present study used a series of 11 measurements to assess the nature of changes (alpha and beta) that may have occurred during the course of an 13 week training period in which laboratory training methods were used to increase participant performance of 15 interpersonal communication skills (Egan, 1977).

Three hypotheses were formulated:

1) During the training period, experimental group subject self-ratings of the "how good you are" dimension for each of the 15 interpersonal skills will gradually increase in a linear fashion over time, (alpha change), until practice on each skill is experienced by subjects by means of the training process; the ratings will then decrease, (beta change), and be followed by an increase to a higher degree than previously achieved,

(alpha change).

2) During the training period, experimental group subject self-ratings of the "amount of desired change" dimension for each of 15 skills will gradually decrease in a linear fashion over time, (alpha change), until practice on each skill is experienced by subjects by means of the training process; the ratings will then increase (beta change), and be followed by a decrease to a lower degree than previously achieved (alpha change).

3) Pre- post- self-ratings of experimental group subjects on the "how good" (HG), and "desired change" (DC) dimensions will be significantly different, and pre- post- self-ratings of comparison group subjects on the same two dimensions will show no change.

4. Subjects

Experimental subjects were 128 college students, 80 males and 48 females, enrolled in an interpersonal communication skills course at a technologically oriented, private university. Comparison subjects were general psychology students, 24 males and 20 females, at the same university.

5. Procedure

The Analysis of Interpersonal Relations course (AIR), included a laboratory training method of instruction with graduate psychology students serving as trainers under the direction of a professor. Thus, the AIR course is experiential in nature wherein students engaged in study and class experiences and analyzed the interpersonal behavior of themselves and other class members. Specifically, the course

design utilized a training model presented by Egan (1977) , in which interpersonal skills were defined as the usual ways one acts towards others, including the communication abilities one already has acquired, as well as the deficient ablities. Increasing or acquiring communication skills includes three components: 1) awareness of what effective communication involves, 2) knowledge of how to act on that awareness, and 3) effectively acting on or asserting the knowledge of that awareness. The course design provided a systematic process which presented one skill at a time and included five steps: 1) instruction, 2) practice, 3) feedback. 4) encouragement and 5) using the skills outside the training group. The course text provided the framework for 13 class sessions which averaged 2.5 hours. Specific class exercises relating to the 15 skills were developed from Egan (1977) and others were developed by the professor. Experimental subjects in each of six sections, which averaged 21 each, formed subgroups of 4-6 persons, on the average, depending on the nature of the exercises. In general, membership in the subgroups tended to remain intact throughout the term. At the beginning of each of 11 class sessions, experimental subjects completed the self-rating assessments. Following completion of these forms, exercises were distributed for that class session.

Experimental subjects used a 5-point Likert scale to complete weekly self-ratings on two dimensions of 15 skills. The dimensions were: 1) "how good are you at the skill?", and 2) "how much change do you desire in performing the skill?" The 15 skills are listed in Table 1 of the handout.

Comparison subjects, who did not receive training, completed the same self-rating form during their first and eleventh class session.

Both groups were provided with skill definitions.

6. Results

For experimental subjects, a multiple regression method of trend analysis (Kerlinger & Pedhauzer, 1973) was used to test for the presence of a statistically significant linear trend, as well as to test the significance of the non-linear component of the variance accounted for. Results of the 30 pairs of regression equations, 15 pairs for each of the two dimensions, are presented in Table 1. In all cases, the R-squared for the restricted (or linear) model was significant, indicating significant linear trends.

For each pair of equations, an F-test for the significance of the difference in R squared between the full (linear and non-linear) and restricted (linear only) models was performed, and those differences that were significant are starred in Table 1, meaning that there is a statistically significant nonlinear component of the accounted for variance. For the HG dimension, a non-linear variance component was significant for two of the dependent variables; however, the magnitude was less than one half of one per cent in both cases and did not warrant further analyses to explain the non-linearity. For the DC dimension, there were no differences in R squared between the full and restricted regression models. In general then, the significant R squared for the restricted model, obtained on both dimensions of all 15 skills, indicates a significant

linear trend (alpha change), and do not support the occurrance of any beta change as hypothesized. Therefore, hypotheses one and two were rejected.

In order to assure that the change observed in the experimental group was due to training, t-tests of mean differences for the pre- and post- measures of both dimensions of the 15 skills were computed for both groups. For the experimental group, all of these differences were significant at .01 level. For the comparison group (n=44), only one difference was significant at the .05 level: the DC dimension of the dependent variable concreteness (t=2.05, p=.05, df=43). These results appear in Table 2 and Table 3. Hypothesis 3 was accepted.

7. Implications and Conclusions

Results of regression analyses for the HG dimension for the experimental group indicate that a statistically significant positive change occurred during the training period for 13 of the 15 skills. Thus, subjects perceived that their abilty to perform each of the 13 skills increased during the 11 week training period. Results of the regression analyses for the DC dimension for the experimental group indicated that a significant negative change occurred during the training period for each of 15 skills. Nevertheless, subjects still appeared to value increasing their ability to perform each of the 15 skills during the training period and also at the end of the training period.

Results of pre- post- t-tests for the HG dimension for the experimental group provided further indication that subjects

perceived that their ability to perform all of the 15 skills had increased from the beginning to the end of training.

Results of pre- post- t-tests for the DC dimension for the experimental group indicated that subjects not only appeared to value increasing their ability to perform each of the 15 skills during the training period, but continued to hold that value at the end of the training period. Additionally, the amount of change that subjects desired did not decrease as a function of the HG rating as predicted. This is a positive outcome that indicates that no matter how good subjects perceived their communication abilities to be, they appeared to aspire to a higher level of performance.

Additionally, this outcome may be suggestive of gamma type changes which are described by Golembiewski, et al. (1976) as "reflecting fundamental changes in conceptualizations [and] expectations, or as a basic redefinition of the content of the referents tapped by most available measures of organization and individual processes..." (p. 140). Thus, further analyses of these results in terms of gamma changes are necessary before additional interpretations can be addressed.

8. References

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Table 1
Multiple R and R Squared Values for Two Dimensions of 15 Skills Using Full and Restricted Models:

Dimension / Skill		HG		DC	
		Full	Res.	Full	Res.
1. Self-disclosure	R2	.086	.085	.003	.003
	R	.294	.291	.058	.058
2. Expressing	R2	.077	.077	.004	.004
	R	.278	.278	.062	.062
3. Concreteness	R2	.065	.068*	.006	.006
	R	.256	.260	.077	.077
4. Attending	R2	.053	.053	.003	.003
	R	.231	.231	.057	.057
5. Understanding	R2	.041	.041	.003	.003
	R	.203	.203	.055	.055
6. Respect	R2	.042	.042	----	----
	R	.204	.204	----	----
7. Genuineness	R2	.047	.047	.004	.004
	R	.217	.217	.063	.063
8. Deeper Understanding	R2	.053	.052	.005	.005
	R	.229	.228	.073	.073
9. Strengths	R2	.047	.047	----	----
	R	.217	.217	----	----
10. Confrontation	R2	.086	.086	.004	.004
	R	.292	.294	.066	.066
11. Immediacy	R2	.070	.074*	.006	.006
	R	.264	.273	.076	.076
12. Active	R2	.077	.077	.004	.004
	R	.277	.277	.067	.067
13. Involvement	R2	.073	.075	.003	.003
	R	.270	.273	.054	.054
14. Challenging	R2	.083	.083	.004	.004
	R	.287	.287	.060	.060
15. In Touch	R2	.064	.064	.003	.003
	R	.253	.252	.059	.059

Note. Dashes indicate no significant iterative solutions.
*$p < .05$. for F-values.

Table 2

Pre- Post- Means for Experimental Group and Comparison Group on the How Good Dimension of 15 Skills:

Group	Experimental*		Comparison**	
	Pre-	Post-	Pre-	Post
Skill				
1. Self-disclosure	2.73	3.80	3.36	3.30
2. Expressing	2.68	3.62	3.16	3.34
3. Concreteness	2.89	3.59	3.14	3.14
4. Attending	3.58	3.98	3.86	3.98
5. Understanding	3.77	3.88	3.75	3.95
6. Respect	3.90	4.15	3.84	3.86
7. Genuineness	3.67	4.12	3.70	3.73
8. Deeper Understanding	3.17	3.58	3.29	3.23
9. Strengths	3.45	3.77	3.66	3.79
10. Confrontation	2.30	3.35	2.52	2.82
11. Immediacy	2.55	3.37	2.75	3.14
12. Active	2.90	3.87	2.86	3.04
13. Involvement	3.02	3.83	2.86	2.84
14. Challenging	2.36	3.38	2.91	3.00
15. In Touch	3.51	4.00	3.50	3.45

Note. *All differences significant at $p=.01$.
**No significant differences at $p=.05$, or lower.

Table 3
Pre- Post- Means for Experimental Group and Comparison Group on the Desired Change Dimension of 15 Skills:

Group	Experimental*		Comparison**	
	Pre-	Post-	Pre-	Post-
Skill				
1. Self-disclosure	3.02	2.45	2.23	2.20
2. Expressing	3.11	2.35	2.34	2.20
3. Concreteness	3.16	2.44	2.66	2.36
4. Attending	2.59	2.17	1.90	2.02
5. Understanding	2.49	2.21	1.86	1.84
6. Respect	2.22	1.95	1.91	2.04
7. Genuineness	2.39	2.05	2.02	2.29
8. Deeper Understanding	2.85	2.50	2.34	2.18
9. Strengths	2.72	2.39	1.95	2.04
10. Confrontation	3.57	2.66	2.52	2.72
11. Immediacy	3.28	2.61	2.75	2.68
12. Active	3.09	2.23	2.91	2.70
13. Involvement	2.96	2.29	2.86	2.89
14. Challenging	3.32	2.53	2.64	2.59
15. In Touch	2.57	2.04	2.11	2.11

Note. *All differences significant at $p=.01$.
**No differences significant at $p=.05$ or lower except for the skill of concreteness.